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EXAMINER
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MILLS, DONALD L

ART UNIT	PAPER NUMBER
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2662

DATE MAILED: 05/21/2004

6

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/774,715

Applicant(s)

IWAMURA ET AL.

Examiner

Donald L Mills

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Specification***

1. The abstract of the disclosure is objected to because the abstract is more than 150 words.

Correction is required. See MPEP § 608.01(b).

### ***Claim Objections***

2. Claims 1 and 3 are objected to because of the following informalities:

Regarding claim 1, line 16, “ an upstream” should be corrected to --a downstream--.

Further regarding claim 1, line 17, “to,” after the word cell, should be corrected to --from--.

Regarding claim 3, lines 4-5, “subscriber terminals” should be corrected to --optical network units--.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 2, 4, 5, and 12-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Regarding claims 2 and 12, the claims specify "limiting the upper-limit bandwidth based on the upper-limit bandwidth" (See claim 2, lines 26-27.) It is unclear what value is acting as the limiting value.

Regarding claims 4 and 13, the term "approximate" (See claim 4, line 14,) is a relative term, which renders the claim indefinite. The term "approximate" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The overflow condition has been rendered indefinite by use of the term "approximate."

Regarding claims 5 and 14, the claims specify "an invalid cell detector that detects invalid cells" (See claim 5, lines 17-18.) It is unclear from the context of the claim what is meant by "invalid cell." One of ordinary skill in the art would not be able to ascertain whether an "invalid cell" is a cell consisting of less than 53 bytes, a unique cell, or an error cell. For the purpose of this examination the examiner will interpret "invalid cells" as idle cells.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4, 6, 9-13, 15, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Ma et al (US 5,953,338), hereinafter referred to as Ma.

Regarding claim 1, Ma discloses a dynamic admission control system for ATM networks, which comprises:

*A traffic supervisory unit for supervising traffic situation of upstream ATM cells sent from a plurality of optical network units* (Referring to Figure 1B, centralized control module 160 manages calls for the network from customer networks 110A, 110B, 110C, ..., which are optically coupled. See column 6, lines 35-36,) *the traffic supervisory unit having a supervisory unit of a receiving bandwidth for detecting the receiving bandwidth of ATM cells transmitted by optical network units* (Referring to Figure 1B, 9A, and 9B, centralized call admission control/usage monitor module 145 monitors the traffic load of clients. See column 8, lines 13-17,) *and a supervisory unit of cell overflow situation for detecting a sending buffer in the optical network units* (Note: Examiner interprets cell overflow as a condition when allocated bandwidth is exceeded, which is consistent with the Applicant's definition on page 18, lines 19-25. Referring to Figures 1B, 9A, and 9B, centralized call admission control/usage monitor module 145 dynamically allocates additional bandwidth when a client exceeds its service level agreement. See column 7, lines 56-59.)

*A bandwidth controller having a basic bandwidth assigner for assigning the basic bandwidth, a shared bandwidth assigner for assigning a shared bandwidth based on an upper-limit bandwidth and a receiving bandwidth and cell overflow situation that were supplied from the traffic supervisory unit* (Referring to Figures 1B, 9A, and 9B, bandwidth manager 150 dynamically manages bandwidths utilized by virtual paths in reaction or anticipation to traffic volume levels, inherently assigning shared bandwidth based upon the bandwidth capacity, monitored bandwidth, and the scenario when a client exceeds its service level, in response to the

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usage monitor module **145**. See column 12, lines 66-67 and column 13, line 1,) *and the shared bandwidth memory for maintaining the assigned shared bandwidth* (Referring to Figure 1B, bandwidth manager **150** inherently comprises memory for storing the received instructions.)

*A generator of permission to transmit a downstream cell for generating permission to transmit an upstream cell from the optical network units according to the shared bandwidth assigned by the bandwidth controller* (Referring to Figure 8, centralized call admission control/monitor module **145** tags the borrowed bandwidth requests and returns the requests, which are utilized for setting up the virtual path, to the client according to the assigned bandwidth by the bandwidth manager module **150**. See column 7, lines 61-63.)

Regarding claims 2 and 12, Ma discloses *a bandwidth fair distributor for assigning the shared bandwidth based on the receiving bandwidth and the cell overflow situation sent by the traffic supervisory unit* (Referring to Figures 1B, 9A, and 9B, bandwidth manager **150** dynamically manages bandwidths utilized by virtual paths in reaction or anticipation to traffic volume levels, inherently assigning shared bandwidth based upon the bandwidth capacity, monitored bandwidth, and the scenario when a client exceeds its service level, in response to the usage monitor module **145**. See column 12, lines 66-67 and column 13, line 1;) *and an upper-limit bandwidth limiter for limiting the upper-limit bandwidth based on the upper-limit bandwidth* (Referring to Figure 10, bandwidth manager module **150** calculates the sum of the bandwidth for all virtual channels on each virtual path to determine whether the total virtual channel bandwidth is larger than the new virtual path bandwidth. See column 13, lines 43-47.)

Regarding claims 3 and 11, Ma discloses *a plurality of divided sub-shared bandwidth memories and the shared bandwidth assigner further comprises a shared bandwidth selector for*

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*selecting any one out of a plurality of the sub-shared bandwidth memories for each of subscriber terminals respectively* (Referring to Figure 2, centralized control module 160 allows a carrier to dynamically assign unused capacity to other clients, inherently comprising sub-shared bandwidth and memory to store the allocation of the bandwidth. See column 8, lines 54-59.)

Regarding claims 4 and 13, Ma discloses *a bandwidth comparator that compares the receiving bandwidth of effective cells received from each of the optical network units and judges that the cell is in the overflow situation in the case where an access bandwidth judged by the bandwidth controller and a receiving cell bandwidth of each of the optical network units are the same or approximately the same* (Note: Examiner interprets cell overflow as a condition when allocated bandwidth is exceeded, which is consistent with the Applicant's definition on page 18, lines 19-25. Referring to Figures 1B, 9A, and 9B, centralized call admission control/usage monitor module 145 dynamically allocates additional bandwidth when a client exceeds its service level agreement. See column 7, lines 56-59.)

Regarding claims 6 and 15, Ma discloses *assigning a plurality of separate assignment bandwidths for one optical network unit to a plurality of shared bandwidths respectively* (Referring to Figure 1B, when a client is not using all of the capacity which the client has a reservation to, the unused capacity is made available to other clients. See column 8, lines 57-59.)

Regarding claims 9 and 18, Ma discloses *assigning one of the basic bandwidth and the shared bandwidth based on the contents of a plurality of subscriber contracts set for one optical network unit* (Referring to Figure 1B, 5A, 5B, 5C, and 5D, if a client is not using all of the capacity which the client has a reservation to use according to their contracts, the unused

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capacity is made available to other clients. See column 11, lines 66-67 and column 12, lines 1-6 and 26-30.)

Regarding claim 10, Ma discloses a dynamic admission control system for ATM networks, which comprises:

*Supervising the traffic situation of upstream ATM cells sent from a plurality of optical network units* (Referring to Figure 1B, centralized control module 160 manages calls for the network from customer networks 110A, 110B, 110C, ..., which are optically coupled. See column 6, lines 35-36;)

*Detecting receiving bandwidth status and overflow situation of the ATM cells, which were transmitted from the plurality of the optical network units* (Note: Examiner interprets cell overflow as a condition when allocated bandwidth is exceeded, which is consistent with the Applicant's definition on page 18, lines 19-25. Referring to Figures 1B, 9A, and 9B, centralized call admission control/usage monitor module 145 dynamically allocates additional bandwidth, based upon the measured received bandwidth, when a client exceeds its service level agreement. See column 7, lines 56-59.)

*Judging the access bandwidth of each of the optical network units according to the receiving bandwidth status, the cell overflow situation, the basic bandwidth and an upper-limited bandwidth* (Referring to Figures 1B, 9A, and 9B, centralized call admission control/usage monitor module 145 dynamically allocates additional bandwidth, based upon the measured received bandwidth, when a client exceeds its service level agreement with respect to the allocated bandwidth and the maximum bandwidth capacity. See column 7, lines 56-61.)



*Guaranteeing the basic bandwidth determined for each of the optical network units*

(Referring to Figure 8, centralized call admission control/usage monitor module 145 guarantees the level of service as specified in the contract agreements for the clients. See column 7, lines 51-53.)

*Distributing the shared bandwidth in the range of the upper-limit bandwidth where bandwidth distribution is judged to be necessary for the optical network units that are in the overflow situation or for the optical network units to which a shared bandwidth is set beyond the basic bandwidth based on the detected receiving bandwidth and the cell overflow situation*

(Referring to Figure 8, when a client using a virtual private network exceeds its service agreement, it can “borrow” additional bandwidth from the provider of the virtual private network. See column 7, lines 57-61.)

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ma et al (US 5,953,338), hereinafter referred to as Ma, in view of Norizuki et al. (US 5,357,510), hereinafter referred to as Norizuki.

Regarding claims 5 and 14 as explained above in the rejection statement of claims 1 and 10; Ma discloses all of the claim limitations of claims 1 and 10 (parent claims). Ma does not

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*disclose an invalid cell detector that detects invalid cells received from each of the optical network units and judges that the cell is in the overflow situation in the case where the invalid cell was not detected.*

Norizuki teaches a method for controlling ATM traffic by detecting the idle cell rate transferring inside the ATM switch unit **107** since the ATM switch unit **107** inserts an idle cell into a transmission-line when there is no user information cell on the transmission-line so as to keep the cell boundaries clear between a user information cell and an idle cell (See column 7, lines 7-12.) Norizuki further teaches counting a series of user information cells between each idle cell to detect a burst transmission that may cause traffic congestion.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the idle cell detection method of Norizuki in the system of Ma to detect the absence of expected idle cells for determining traffic congestion at a node. One of ordinary skill in the art would have been motivated to do so in order to provide additional bandwidth to a congested client when they exceed their contracted service agreement as taught by Ma (See column 7, lines 56-61.)

9. Claims 7, 8, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ma et al (US 5,953,338), hereinafter referred to as Ma, in view of Umehira et al. (US 6,188,697 B1), hereinafter referred to as Umehira.

Regarding claims 7 and 16 as explained above in the rejection statement of claims 1 and 10; Ma discloses all of the claim limitations of claims 1 and 10 (parent claims). Ma does not

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*disclose assigning the shared bandwidth based on a predetermined priority for each of the sub-shared bandwidths.*

Umehira teaches an ATM cell transport system comprising cells with a high and low priority. And during output intervals of cells of a high priority, lower priority cells are inserted when unused bandwidth is available (See Figure 2, column 7, lines 30-42.)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement cell priority method of Umehira in the system of Ma. One of ordinary skill in the art would have been motivated to do so in order to realize a system that provides high frequency utilization efficiency that is capable of making efficient use of allocated bandwidth for different classes of service.

Regarding claims 8 and 17 as explained above in the rejection statement of claims 1 and 10; Ma discloses all of the claim limitations of claims 1 and 10 (parent claims). Ma does not disclose *providing a plurality of kinds basic bandwidths and assigning the shared bandwidth in proportion to each of the basic bandwidths.*

Umehira teaches an ATM cell transport system comprising cells with a high and low priority buffers. And during output intervals of cells of a high priority, lower priority cells are inserted, directly proportional to the number of buffers, when unused bandwidth is available (See Figure 2, column 7, lines 30-42.)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement cell priority method of Umehira in the system of Ma. One of ordinary skill in the art would have been motivated to do so in order to realize a system that provides high

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frequency utilization efficiency that is capable of making efficient use of allocated bandwidth for different classes of service.

***Conclusion***


10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald L Mills whose telephone number is 703-305-7869. The examiner can normally be reached on 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 703-305-4744. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Donald L Mills

*DM*  
May 13, 2004

  
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